Alternative Fuel Vehicle Funding Worksheet

Clean Cities realizes that most of you do not have the time to search for funding opportunities. Therefore, this guide identifies available funding opportunities and presents the information clearly and concisely. We have made every effort to replace wordy descriptions with $ signs and numbers, because this funding guide is all about saving you money. To take this idea of $ signs and numbers one step further, we have created an easy-to-use worksheet so that you can calculate a cumulative AFV funding potential. Examples of completed worksheets are included in this guide as well as a blank worksheet for you to calculate your potential savings. An additional perforated blank worksheet can be found at the end of the book.

The worksheet is composed of two parts. The first part includes a section for tabulating various potential sources of funding. The second part of the funding worksheet allows you to calculate the individual payback periods for your AFV purchases.

Completing Part 1 of the Worksheet

To complete the first part of the worksheet on sources of funding, please turn to your state's section of this book. To help identify incentives with dollar values, we have highlighted in green those incentives that can be plugged into the worksheet. Look at the AFV funding opportunities in your state and insert into the worksheet those incentives for which you are eligible. In addition, read through your state's section to see if there are any other possible sources of funding. You may need to make some phone calls to get the details on some programs.

Part 1 of the worksheet, Sources of Funding, is divided into four headings: I. State Incentives, II. Utilities/Private Incentives, III. State Laws & Regulations, and IV. Federal Tax Incentives. Headings I - III correspond to headings under each state section. Heading IV corresponds to the Federal section of the book, starting on page 130.

I. **State Incentives** - If any state incentives apply to you, fill in the name of the programs on the lines, and enter the total dollar amount in the corresponding box under the "Amount You Expect to Receive" column.

II. **Utilities/Private Incentives** - If your local utility has an incentive program listed, you can insert that into the worksheet here. You may want to call the contact person listed to get the details on the program. In addition to what is listed, many local utility companies will work with customers on a case-by-case basis to provide custom incentives for AFVs. Call the local utility in your area for details. Some alternative fuel providers that are not utilities offer incentives for AFVs. In addition, when purchasing a new vehicle, check with the manufacturer for any rebates.

III. **State Laws & Regulations** - Some state laws and regulations can provide savings for AFVs. For instance, several states offer sales tax exemptions for AFV purchases. If your state offers this exemption, you could figure out how much tax you would have had to pay and enter that amount in the worksheet. If the fuel tax in your state is lower on your alternative fuel of choice than on gasoline, you could calculate your fuel tax savings by multiplying the difference between the gasoline fuel tax and the alternative fuel tax by the vehicle's miles per gallon (mpg) to find the dollars per mile fuel tax savings. Then multiply the dollars per mile fuel tax savings by the annual driving distance you expect for your vehicle to find the fuel tax savings for the first year. Again, enter the total amount in the corresponding box.

IV. **Federal Tax Incentives** - The Federal tax incentives on page 130 can be plugged right into the worksheet. For electric vehicles, the tax credit of 10% of the vehicle cost, up to $4,000 can be entered directly in the corresponding box under numeral IV. For other AFVs, the value of the tax deduction will depend on your tax rate. To find the dollar value of the tax deduction, multiply the amount of the deduction by your tax rate. For example, if you were purchasing an AFV that qualified for the $2,000 tax deduction, and your income level put you in the 28% tax bracket, the value of the tax deduction would be $560. Check with your tax advisor for the details of how the Federal tax incentives would apply to your specific situation, or call the Internal Revenue contact person listed with the Federal tax incentives on page 130.

Once you have identified all the incentives that apply to you, simply add them up to see your potential savings, and enter the total in the box labeled **Total Funding**.

Completing Part 2 of the Worksheet

Part 2 of the worksheet involves determining the payback period for your AFV. To calculate the payback period, follow these step-by-step instructions.

1. Determine the **Incremental Cost** for your vehicle by subtracting the cost of a comparable gasoline vehicle from the initial cost of your AFV. For converting existing vehicles, use the conversion cost as the **Incremental Cost**.
2. Subtract the **Total Funding** that you calculated in **Part 1** from the Incremental Cost (1a). This will give you the **Net Incremental Cost** (2a) of the AFV. If the **Net Incremental Cost** is less than zero, then your incentives offset the incremental cost for the AFV. You do not need to continue to figure your payback period, because you do not have any additional costs to pay back. For most people, the incentives will not be enough to cover the additional incremental costs of the AFV. However, if it costs you less to run your vehicle on the alternative fuel than it would to run it on gasoline, then you can use steps 3 through 5 to determine how many miles you will need to drive the vehicle to save enough in fuel costs to pay back the **Net Incremental Cost** of the AFV.
3. Determine your fuel costs per mile for using both the alternative fuel and gasoline. Complete section 3a below, and then complete one of the two remaining sections, 3b or 3c, depending on the type of fuel for your AFV.
   a) For gasoline, divide the per gallon price of gasoline by the vehicle's miles per gallon (mpg). For example, if the average price in your city for a gallon of gasoline is $1.20, write $1.20 in the box labeled "$ per gallon." If your vehicle gets 20 miles per gallon, write 20 in the box labeled "vehicle mpg." Then divide $1.20 by 20 to get $0.06 per mile fuel cost.
   b) For the alternative fuel, divide the price per gasoline gallon equivalent (gge) by the vehicle's mpg when operating on the alternative fuel. If you are buying a new vehicle, the manufacturer can provide you with this number. If you are converting a vehicle, the conversion company can provide you with an estimate of the mpg. For example, if you are converting to a natural gas vehicle (NGV), and natural gas will cost you $0.75 per gge, write $0.75 in the box labeled "$ per gge." If the vehicle, once converted to natural gas will get 20 miles per gge, write 20 in the box labeled "vehicle mpg." Then divide $0.75 by 20 to get $0.0375 per mile fuel cost.
   c) For an electric vehicle, divide the price of electricity per kilowatt hour (kWh), by the miles the vehicle will get per kWh. The manufacturer or conversion company will be able to give you this figure. For example, if your electric rate is $0.041 per kWh, write $0.041 in the box labeled "$ per kWh." If the vehicle will get 4 miles per kWh, enter 4 in the box labeled "vehicle miles per kWh." Then divide $0.041 by 4 to get $0.01025 per mile fuel cost.
4. Find your **$ savings per mile** by subtracting the per mile fuel cost of the alternative fuel (box 3b or 3c) from the per mile gasoline cost (box 3a). For example, for the NGV shown above in 3b, subtract $0.0375 per mile fuel cost from $0.06 per mile gasoline cost in 3a to get a cost savings of $0.0225 per mile.
5. To find the **Payback Period**, divide the **Net Incremental Cost** (box 2a) by the **$ savings per mile** (box 4a) to get the payback period in miles. This calculates the number of miles the vehicle would need to be driven to pay back the additional incremental cost of the AFV.

AFV FUNDING WORKSHEET -- State of _____

PART 1 - Sources of Funding | **Amount You Expect to Receive**

I. State Incentives

_____ $ [ ]

II. Utilities/Private Incentives

_____ + $ [ ]

III. State Laws & Regulations

_____ + $ [ ]

IV. Federal Tax Incentives

_____ + $ [ ]

Total Funding = $ [ ]

PART 2 - Payback Period

1) To calculate an AFV's payback period, you first need to know the **Incremental Cost** of that vehicle compared to a comparable gasoline vehicle:

$ [ ] Initial Cost of AFV – $ [ ] Cost of Comparable Gasoline Vehicle = $ [ ] Incremental Cost * 1a

* NOTE: If you are converting existing fleet vehicles, then substitute the conversion cost for the **Incremental Cost**.

2) Subtract from the **Incremental Cost**, box 1a, the **Total Funding** from the box at bottom of Part 1 to get the **Net Incremental Cost**.

$ [ ] Incremental Cost (from box 1a) – $ [ ] Total Funding (from part 1) = $ [ ] Net Incremental Cost 2a

3) To find the **$ per mile fuel cost**, divide your fuel cost per gasoline gallon equivalent (gge) by your vehicle's miles per gallon (mpg). Do this calculation for both gasoline and the alternative fuel.

a) gasoline: $ [ ] $ per gallon / [ ] vehicle mpg mpg = $ [ ] $ per mile fuel cost 3a

b) alternative fuel: $ [ ] $ per gge / [ ] vehicle mpg mpg = $ [ ] $ per mile fuel cost 3b

c) electric: $ [ ] $ per kWh / [ ] vehicle miles per kWh mi/kWh = $ [ ] $ per mile fuel cost 3c

4) Then subtract the **$ per mile fuel cost** of your alternative fuel from the **$ per mile fuel cost** of gasoline to find your **$ savings per mile**.

$ [ ] $ per mile fuel cost gasoline (from box 3a) – $ [ ] $ per mile fuel cost alternative fuel (from box 3b or 3c) = $ [ ] $ savings per mile 4a

5) Then divide the **Net Incremental Cost,** box 2a, by the **$ savings per mile,** box 4a, to get the payback period for your AFV in terms of miles.

$ [ ] Net Incremental Cost (from box 2a) / $ [ ] $ savings per mile (from box 4a) = [ ] Payback in miles miles

Examples of Completed Worksheets

Example 1

Example 1 is the completed worksheet for the purchase of a new OEM CNG vehicle in Indiana (see page 9). Suppose you live in Indiana and are interested in purchasing a new CNG Ford F-Series Truck. In this example, the cost of the vehicle is $27,580, the cost of a comparable gasoline vehicle is $24,000, the vehicle gets 18 miles to the gallon on either gasoline or CNG, gasoline costs are $1.20 per gallon, and CNG costs are $0.75 per gasoline gallon equivalent (gge).

On page 47 you find, in the green highlights box, that the Small Business Energy Initiative Grant program will help pay for the incremental costs for the natural gas option on your vehicle. The minimum grant amount is $2,000. The Small Business Energy Initiative program is put under the **State Incentives** heading in **Part 1** of the worksheet, with the amount of $2,000 in the box in the **Amount You Expect to Receive** column. On page 47 you see that if you live in the service area of Southern Indiana Gas and Electric, you can receive a $1,000 rebate on the purchase of an OEM AFV. Assuming that Southern Indiana Gas and Electric is your local gas utility, the rebate is put under the **Utilities/Private Incentives** heading in Part 1 of the worksheet, with the amount $1,000 in the box in the **Amount You Expect to Receive** column. The details on the programs in the highlights section for each state are printed in green with a $ next to them to make it easier for you to find the information you need. The text for each state also includes additional information on other AFV programs in the state.

For the **Federal Tax Incentives** heading, turn to page 130. The CNG truck qualifies for a $2,000 tax deduction. If you are in the 28% tax bracket, the value of the tax deduction would be $560. The $2,000 Federal tax deduction is put under the **Federal Tax Incentives** heading in **Part 1** of the worksheet, with the amount of $560 in the box in the **Amount You Expect to Receive** column. Add together all of the numbers in the **Amount You Expect to Receive** column to get a **Total Funding** amount of $3,560.

Part 2 of the worksheet calculates the payback period. In step 1, subtract the $24,000 cost of a comparable gasoline vehicle from the $27,580 cost for the NGV to get the **Incremental Cost** of $3,580. In step 2, subtract the **Total Funding** of $3,560 from the **Incremental Cost** of $3,580 to get $20 as your **Net Incremental Cost** after applying incentives. In step 3a, divide the price of $1.20 per gallon for gasoline by the vehicle fuel efficiency of 18 mpg, to get $0.0667 per mile fuel cost. In step 3b, divide $0.75 per gge cost of CNG by the vehicle fuel efficiency of 18 mpg to get $0.0417 per mile fuel cost. In step 4, subtract the $0.0417 per mile fuel cost (box 3b) from the $0.0667 per mile gasoline cost (box 3a) to get a cost savings of $0.025 per mile. In step 5, divide the **Net Incremental Cost** of $20 (box 2a) by the fuel cost **$ savings per mile** of $0.025 (box 4a) to get 800 miles as the payback period. The vehicle would need to be driven 800 miles to pay back the additional incremental cost of the AFV.

Example 2

Example 2 is a completed worksheet for a CNG conversion in Kansas (see page 10). The amounts for the incentives for Kansas can be found on page 51. The worksheet uses a conversion cost of $4,000. The green highlights box on page 51 shows that Kansas offers a tax credit for 50% of the conversion cost for AFVs. With a conversion cost of $4,000, the 50% tax credit would be worth $2,000. On page 51, you see that the Kansas Corporation Commission offers a $1,500 incentive for AFVs. Add together the $2,000 tax credit and the $1,500 incentive to get a total of $3,500 for the **State Incentives** heading in **Part 1** of the worksheet, and enter the amount of $3,500 in the box in the **Amount You Expect to Receive** column. Then figure out value of the Federal tax deduction as shown in Example 1. The $2,000 Federal tax deduction is put under the **Federal Tax Incentives** heading in Part 1 of the worksheet, with the amount of $560 in the box in the **Amount You Expect to Receive** column. Add together all of the numbers in the **Amount You Expect to Receive** column to get a **Total Funding** amount of $4,060. In this case, the **Total Funding** of $4,060 completely covers the incremental cost of the conversion, so there is no need to complete **Part 2** of the worksheet.

Example 3

Example 3 is a completed worksheet for the purchase of an EV in California (see page 11). The incentives for California are on page 21. The worksheet assumes that the EV cost is $32,000, and the cost of a comparable gasoline vehicle is $20,000. A $5,000 incentive for EV purchases is available from the South Coast Air Quality District. The Federal Tax Credit for EVs is based on 10% of the vehicle cost, up to $4,000. For the vehicle in the worksheet, the credit would be 10% of $32,000 or $3,200. Add these two incentives to get a **Total Funding** amount of $8,200. **Part 2** assumes a cost for gasoline of $1.20 per gallon, and a cost of electricity of $0.041 per kWh, and an EV fuel efficiency of 4 miles per kWh. Using these figures, the payback period for the EV would be 76,381 miles.

NOTE: These examples are provided to give you an idea of how to use the worksheets. Your individual situation may be different, even if you live in the same state used in one of the examples. Be sure to call to confirm the details of incentives that apply to you.

EXAMPLE 1

AFV FUNDING WORKSHEET -- Indiana - Natural Gas Vehicle Purchase

PART 1 - Sources of Funding | **Amount You Expect to Receive**

I. State Incentives
Small Business Energy Initiative Grant Program (see page 47) provides grants for AFV projects minimum grant - $2,000 — $ 2,000

II. Utilities/Private Incentives
$1,000 rebate from Southern Indiana Gas and Electric (see page 47) — + $ 1,000

III. State Laws & Regulations
— + $ 0

IV. Federal Tax Incentives
$2,000 tax deduction (see page 130) * $2,000 * 0.28 = $560 (28% tax bracket) — + $ 560

Total Funding = $ 3,560

PART 2 - Payback Period

1) To calculate an AFV's payback period, you first need to know the **Incremental Cost** of that vehicle compared to a comparable gasoline vehicle:

$ 18,580 (Initial Cost of AFV) – $ 15,000 (Cost of Comparable Gasoline Vehicle) = $ 3,580 (Incremental Cost *) 1a

* NOTE: If you are converting existing fleet vehicles, then substitute the conversion cost for the **Incremental Cost**.

2) Subtract from the **Incremental Cost**, box 1a, the **Total Funding** from the box at the bottom of Part 1 to get the **Net Incremental Cost**.

$ 3,580 (Incremental Cost (from box 1a)) – $ 3,560 (Total Funding (from part 1)) = $ 20 (Net Incremental Cost) 2a

3) To find the **$ per mile fuel cost**, divide your fuel cost per gasoline gallon equivalent (gge) by your vehicle's miles per gallon (mpg). Do this calculation for both gasoline and the alternative fuel.

a) gasoline: $ 1.20 ($ per gallon) / 18 (vehicle mpg) mpg = $ 0.0667 ($ per mile fuel cost) 3a

b) alternative fuel: $ 0.75 ($ per gge) / 18 (vehicle mpg) mpg = $ 0.0417 ($ per mile fuel cost) 3b

c) electric: $ ($ per kWh) / (vehicle miles per kWh) mi/kWh = $ ($ per mile fuel cost) 3c

4) Then subtract the **$ per mile fuel cost** of your alternative fuel from the **$ per mile fuel cost** of gasoline to find your **$ savings per mile**.

$ .0667 ($ per mile fuel cost gasoline (from box 3a)) – $ .0417 ($ per mile fuel cost alternative fuel (from box 3b or 3c)) = $ .025 ($ savings per mile) 4a

5) Then divide the **Net Incremental Cost,** box 2a, by the **$ savings per mile,** box 4a, to get the payback period for your AFV in terms of miles.

$ 20 (Net Incremental Cost (from box 2a)) / $ 0.025 ($ savings per mile (from box 4a)) = 800 (Payback in miles) miles

* NOTE: Fuel prices were collected in July 1995. Actual amount of tax deduction figure will vary with individual's/company's tax bracket.

EXAMPLE 2

AFV FUNDING WORKSHEET -- Kansas - Compressed Natural Gas Vehicle Conversion

PART 1 - Sources of Funding | **Amount You Expect to Receive**

I. State Incentives
50% tax credit for conversion cost (see page 51)
Conversion cost = $4,000; $4,000 * 0.50 = $2,000
$1,500 from Kansas Corporation Commission (see page 51)
$2,000 + $1,500 = $3,500
$ 3,500

II. Utilities/Private Incentives
+ $

III. State Laws & Regulations
+ $

IV. Federal Tax Incentives
IRS tax deduction 0.28 * $2,000 = $560 (see page 130)
(28% tax bracket)
+ $ 560

Total Funding = $ 4,060

PART 2 - Payback Period

1) To calculate an AFV's payback period, you first need to know the **Incremental Cost** of that vehicle compared to a comparable gasoline vehicle:

$ _____ (Initial Cost of AFV) – $ _____ (Cost of Comparable Gasoline Vehicle) = $ 4,000 (Incremental Cost *) 1a

* NOTE: If you are converting existing fleet vehicles, then substitute the conversion cost for the **Incremental Cost**.

2) Subtract from the **Incremental Cost**, box 1a, the **Total Funding** from the box at the bottom of Part 1 to get the **Net Incremental Cost**.

$ 4,000 (Incremental Cost (from box 1a)) – $ 4,060 (Total Funding (from part 1)) = $ -60 ** (Net Incremental Cost) 2a

3) To find the **$ per mile fuel cost**, divide your fuel cost per gasoline gallon equivalent (gge) by your vehicle's miles per gallon (mpg). Do this calculation for both gasoline and the alternative fuel.

a) gasoline: $ _____ ($ per gallon) / _____ (vehicle mpg) mpg = $ _____ ($ per mile fuel cost) 3a

b) alternative fuel: $ _____ ($ per gge) / _____ (vehicle mpg) mpg = $ _____ ($ per mile fuel cost) 3b

c) electric: $ _____ ($ per kWh) / _____ (vehicle miles per kWh) mi/kWh = $ _____ ($ per mile fuel cost) 3c

4) Then subtract the **$ per mile fuel cost** of your alternative fuel from the **$ per mile fuel cost** of gasoline to find your **$ savings per mile**.

$ _____ ($ per mile fuel cost gasoline (from box 3a)) – $ _____ ($ per mile fuel cost alternative fuel (from box 3b or 3c)) = $ _____ ($ savings per mile) 4a

5) Then divide the **Net Incremental Cost,** box 2a, by the **$ savings per mile,** box 4a, to get the payback period for your AFV in terms of miles.

$ _____ (Net Incremental Cost (from box 2a)) / $ _____ ($ savings per mile (from box 4a)) = _____ (Payback in miles) miles

** We did not calculate the payback period because there was no additional cost to pay back.

EXAMPLE 3

AFV FUNDING WORKSHEET -- State of California - Electric Vehicle Purchase

PART 1 - Sources of Funding | **Amount You Expect to Receive**

I. State Incentives
South Coast Air Quality Management District
$5,000/Electric Vehicle (see pages 21-22)
$ 5,000

II. Utilities/Private Incentives
+ $

III. State Laws & Regulations
+ $

IV. Federal Tax Incentives
Federal tax credit for electric vehicle (see page 130)
10 percent of vehicle cost up to $4,000
Vehicle cost = $32,000 * 0.10 = $3,200
+ $ 3,200

Total Funding = $ 8,200

PART 2 - Payback Period

1) To calculate an AFV's payback period, you first need to know the **Incremental Cost** of that vehicle compared to a comparable gasoline vehicle:

$ 32,000 (Initial Cost of AFV) – $ 20,000 (Cost of Comparable Gasoline Vehicle) = $ 12,000 (Incremental Cost *) 1a

* NOTE: If you are converting existing fleet vehicles, then substitute the conversion cost for the **Incremental Cost**.

2) Subtract from the **Incremental Cost**, box 1a, the **Total Funding** from the box at the bottom of Part 1 to get the **Net Incremental Cost**.

$ 12,000 (Incremental Cost (from box 1a)) – $ 8,200 (Total Funding (from part 1)) = $ 3,800 (Net Incremental Cost) 2a

3) To find the **$ per mile fuel cost**, divide your fuel cost per gasoline gallon equivalent (gge) by your vehicle's miles per gallon (mpg). Do this calculation for both gasoline and the alternative fuel.

a) gasoline: $ 1.20 ($ per gallon) / 20 (vehicle mpg) mpg = $ 0.06 ($ per mile fuel cost) 3a

b) alternative fuel: $ ($ per gge) / (vehicle mpg) mpg = $ ($ per mile fuel cost) 3b

c) electric: $ 0.041 ($ per kWh) / 4 (vehicle miles per kWh) mi/kWh = $ 0.01025 ($ per mile fuel cost) 3c

4) Then subtract the **$ per mile fuel cost** of your alternative fuel from the **$ per mile fuel cost** of gasoline to find your **$ savings per mile**.

$ .06 ($ per mile fuel cost gasoline (from box 3a)) – $ 0.01025 ($ per mile fuel cost alternative fuel (from box 3b or 3c)) = $ 0.04975 ($ savings per mile) 4a

5) Then divide the **Net Incremental Cost,** box 2a, by the **$ savings per mile,** box 4a, to get the payback period for your AFV in terms of miles.

$ 3,800 (Net Incremental Cost (from box 2a)) / $ 0.04975 ($ savings per mile (from box 4a)) = 76,381 (Payback in miles) miles

* NOTE: Fuel prices were collected in July 1995.